

WE CLAIM:

1. A hose system comprising:
  - a fluid control device comprising an inlet and an outlet, the fluid control device configured to receive liquid at a first pressure through the inlet and to provide liquid at a second pressure through the outlet, the first pressure being less than the second pressure; and
  - a hose reel device in fluid communication with the outlet of the fluid control device, the hose reel device comprising a rotatable drum onto which a hose can be spooled, the hose reel device configured to convey fluid from the outlet to a hose spooled onto the drum.
2. The hose system of Claim 1, wherein the inlet of the fluid control device is in fluid communication with a fluid source and the outlet of the fluid control device is in fluid communication with the hose reel device, wherein the hose reel device has a housing to which the fluid control device is attached.
3. The hose system of Claim 1, wherein the inlet of the fluid control device is in fluid communication with a fluid source and the outlet of the fluid control device is in fluid communication with a hose that can be spooled onto the rotatable drum of the hose reel device.
4. The hose system of Claim 1, wherein the fluid control device comprises a pump configured to pressurize the liquid received at the first pressure so that the second pressure is in the range of about 500 psi to about 5,000 psi.
5. The hose system of Claim 1, wherein the fluid control device comprises a pump configured to pressurize the liquid received at the first pressure so that the second pressure is at least about 1,200 psi.
6. The hose system of Claim 1, wherein the inlet comprises a liquid inlet, the fluid control device further comprising a gas inlet and a valve system, the valve system configured to allow into the outlet a liquid flow from the liquid inlet while stopping a gas flow from the gas inlet, the valve system configured to allow into the outlet the gas flow from the gas inlet while stopping the liquid flow from the liquid inlet, the valve system configured to allow into the outlet a mixed flow comprising the liquid flow and the gas flow.

7. The hose system of Claim 1, further comprising:

an output hose adapted to be spooled around the rotatable drum of the hose reel device and in fluid communication with the outlet of the fluid control device;

an input hose having one end in fluid communication with the inlet of the fluid control device and another end in fluid communication with a liquid source, the input hose having a diameter that is greater than a diameter of the output hose.

8. The hose system of Claim 1, wherein the fluid control device further comprises a second inlet, the fluid control device configured to allow into the outlet the liquid from the first inlet while substantially stopping gas from the second inlet, the fluid control device configured to allow into the outlet the gas from the second inlet while substantially stopping liquid from the first inlet.

9. The hose system of Claim 8, further comprising a hose that is in fluid communication with the outlet and having a first lumen and a second lumen, wherein the fluid control device and hose are configured so that liquid flows from the fluid control device through the first lumen of the hose and gas flows from the fluid control device through the second lumen of the hose.

10. The hose system of Claim 9, wherein the hose has a first end and a second end, the first end being coupled to the outlet of the fluid control device and the second end being coupled to a nozzle configured to selectively receive the liquid and gas flows from the first and second lumens.

11. The hose system of Claim 10, wherein the nozzle comprises a nozzle outlet and a nozzle valve system, the nozzle valve system being configured to permit into the nozzle outlet the liquid flow from the first lumen while inhibiting the gas flow from the second lumen, the nozzle valve system configured to permit into the nozzle outlet the gas flow from the second lumen while inhibiting the liquid flow from the first lumen, the nozzle valve system configured to permit into the nozzle outlet a mixed flow comprising the liquid flow and the gas flow.

12. The hose system of Claim 10, wherein the nozzle comprises a nozzle outlet, the nozzle being configured output a mixed flow comprising the liquid flow and gas flow from the first and second lumens.

13. The hose system of Claim 1, further comprising a nozzle in communication with the hose reel device, the nozzle comprising:

a nozzle inlet;

a gas passage having a gas passage inlet and a gas passage outlet;

a nozzle outlet; and

a chamber defining a flow path between the nozzle inlet and the nozzle outlet, the gas passage outlet being disposed along the flow path, the chamber being configured to combine liquid from the liquid inlet and gas from the gas passage outlet.

14. The hose system of Claim 13, wherein the gas passage inlet is open to the atmosphere exterior of the hose system.

15. The hose system of Claim 13, further comprising a hose in fluid communication with the outlet of the fluid control device and the nozzle, the hose having a plurality of lumens, one of said lumens being in fluid communication with the gas passage inlet.

16. The hose system of Claim 13, wherein the chamber comprises a flow restrictive portion along the flow path.

17. The hose system of Claim 16, wherein the gas passage outlet is disposed within the flow restrictive portion of the chamber.

18. A fluid control device for a pressure fluid system, comprising:

a gas inlet;

a liquid inlet configured to be coupled to a hose;

an outlet configured to be coupled to a hose; and

a valve system configured to allow into the outlet a liquid flow from the liquid inlet while stopping a gas flow from the gas inlet, the valve system configured to allow into the outlet the gas flow from the gas inlet while stopping the liquid flow from the liquid inlet, the valve system configured to allow into the outlet a mixed flow comprising the liquid flow and the gas flow.

19. The fluid control device of Claim 18, further comprising:

a gas inlet system comprising the gas inlet and an internal gas passage connected to the gas inlet; and

an external gas hose coupled to the gas inlet.

20. The fluid control device of Claim 18, further comprising:

a liquid inlet system comprising the liquid inlet and an internal liquid passage connected to the liquid inlet;

an external liquid hose coupled to the liquid inlet; and

an external output hose coupled to the outlet.

21. The fluid control device of Claim 18, wherein the valve system is within a single housing, and the gas inlet, the liquid inlet, and the outlet are disposed on the housing and provide fluid communication with the valve system.

22. The fluid control device of Claim 18, wherein the valve system is configured to selectively provide the mixed flow ranging between mostly comprising the fluid flow and mostly comprising the gas flow.

23. The fluid control device of Claim 18, wherein the liquid flow is water and the gas flow is air.

24. A method of providing fluid flow, comprising:

receiving a liquid flow from a liquid inlet;

receiving a gas flow from a gas inlet;

conveying into an output hose the liquid flow from the liquid inlet while preventing the gas flow from the gas inlet from flowing into the output hose;

conveying into the output hose the gas flow from the gas inlet while preventing the liquid flow from the liquid inlet from flowing into the output hose; and

conveying into the output hose a mixed flow comprising the liquid flow and the gas flow.

25. The method of Claim 24, further comprising raising the pressure of the liquid received from the liquid inlet prior to conveying the liquid into the output hose.

26. A hose system comprising:

a fluid control device comprising an inlet and an outlet;

an inlet hose in fluid communication with the inlet, the inlet hose having an inlet hose lumen with a first cross sectional area; and

an output hose in fluid communication with the outlet, the output hose having an output hose lumen with a second cross sectional area being smaller than the first cross sectional area;

wherein the fluid control device is configured to receive liquid from the inlet at a first pressure and convey the liquid to the outlet at one of a second and a third pressure, the first pressure being less than the second and third pressures, the second pressure being less than the third pressure, the second pressure being at about a level sufficient to induce a flow rate in the output hose that is generally equivalent to a flow rate of a similar liquid flowing at said first pressure in a lumen having said first cross sectional area, the third pressure being at least 500 psi.

27. The hose system of Claim 26, wherein the fluid control device is a pump.
28. The hose system of Claim 26, wherein the third pressure is at least 1200 psi.
29. The hose system of Claim 26, wherein the third pressure is within 500-5000 psi.
30. The hose system of Claim 26, wherein the third pressure is at least 2000 psi.
31. The hose system of Claim 26, wherein the first pressure is within 40-60 psi.
32. The hose system of Claim 26, wherein the first cross sectional area is that which exists within a standard hose having a nominally 5/8 inch diameter.
33. The hose system of Claim 26, wherein the second cross sectional area is that which exists within a standard hose having a nominally 1/2 inch diameter.
34. The hose system of Claim 26, wherein the output hose is connected to a hose reel device comprising a third hose and a rotatable drum onto which the third hose can be spooled, the output hose connected to the hose reel device so as to convey fluid from the output hose to the third hose.